

DEPARTMENT OF CHEMISTRY AND PHYSICS

PHYS 2520 General Analytical Physics

Textbook **Physics for Engineers and Scientists**, 3rd Edition, Vol.2 Ohanian and Markert

Course Content

This course is calculus-based introduction to electricity, magnetism, waves and optics. Material covered: Chapters 22-35 in the text book including electric force and electric charge, the electric field, Gauss' Law, electrostatic potential and energy, capacitors and dielectrics, current and Ohm's Law, direct current circuits, magnetic force and field, charges and currents in magnetic field, electromagnetic induction, alternating current circuits, electromagnetic waves, reflection, refraction, and optics, interference and diffraction.

Course Goals

Students will learn the basic laws of electricity, magnetism and optics, and how to apply them to simple systems. Students will acquire the skills of solving physics problems: theory, formulas, graphical and numerical results. Students will acquire the inestimable skills of understanding simple natural physical situations, attempt to model them and draw conclusions from these works.

Course Objectives

The student who successfully completes this course should be able: to analyze situations involving electricity, DC and AC circuits, applications of AC current, magnetism and optics, to demonstrate the understanding of the basic laws of electromagnetism, to apply the principles of electricity, magnetism and optics to real situations.

Quizzes and exams

There will be many quizzes in class during the semester. Each quiz will contain one or two problems including analytical problems and conceptual. You can use calculators, pencil, and scratch paper. No books, formula sheets, notes, cell phones, PDA, computer portable memories, etc., are allowed. Some formulas may be provided. For difficult mathematical procedures, indications will be given. Each exam is self-consistent and each question will contain enough information to let you solve it. Makeup tests will be given only for valid written official excuses, only in very special situations, and will be in a different format. The midterm and final exams are comprehensive. The exam format will be the same of partial quizzes, except you will have more problems. About 75% of the material in this final test may be selected from material you have been tested on before. There is no make-up (earlier or later) for the final exam, except early graduating seniors.

Statement about Students with Disabilities

It is the policy of NSU to accommodate students with disabilities, pursuant to federal law, state law, and the University's commitment to equal educational opportunities. Any student with a disability who needs accommodations, for example in seating placement or in arrangements for examinations, should inform the instructor at the beginning of the course. Students with disabilities are encouraged to contact the Office of Disability Support, which is located in Kyser Hall, Room 239, telephone (318)357-4460 or TTD (318)357-4393.